Integrated Math 2
Key Concept 6 REVIEW PART 1 (6A, 6B, 6C)

REVIEW

Name: Key

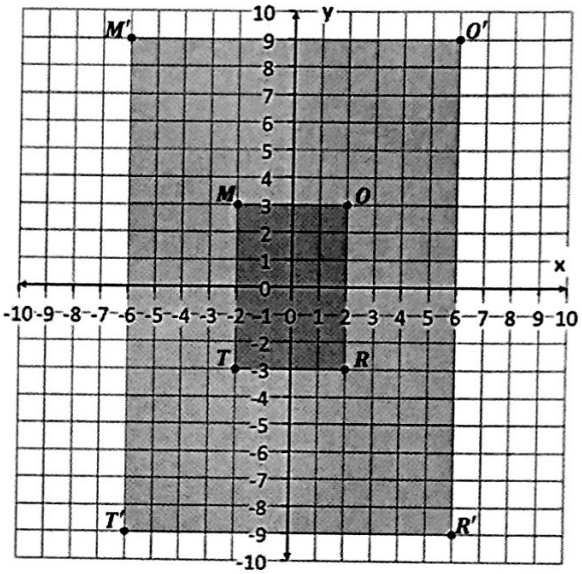
Period: _____

Target 6A: Understand similarity in terms of transformations in the coordinate plane.

1. Determine the scale factor from $MORT$ to $M'O'R'T'$. (1 point)

$$\text{Scale Factor} = \frac{\text{new}}{\text{original}}$$

$$SF = \frac{M'O'}{MO} = \frac{12}{4} = \boxed{3}$$



Use the following information to answer questions #2 – 3. In the coordinate plane shown, ΔJSM has vertices $J\ (-6,-2)$, $S\ (2,4)$, and $M\ (8,-4)$. The figure transforms from ΔJSM to $\Delta J'S'M'$.

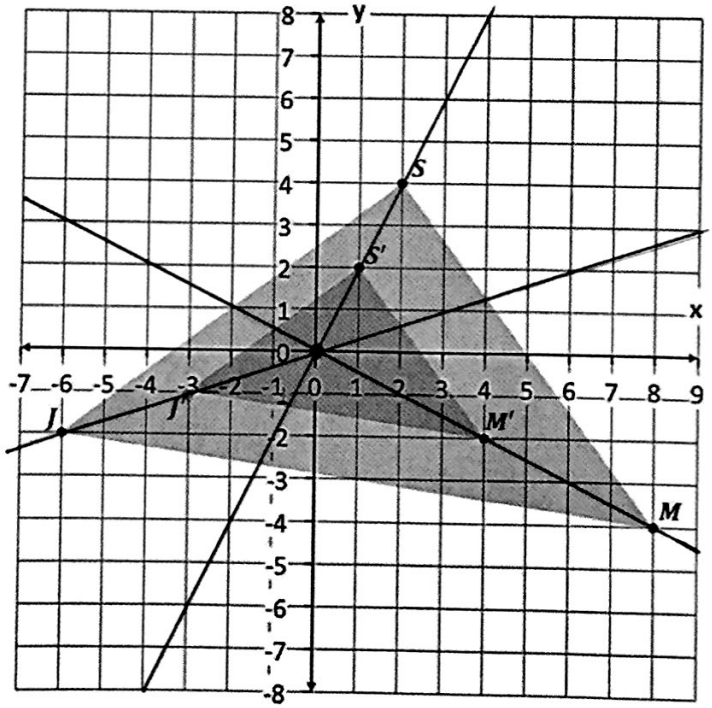
2. Determine the center of dilation: (1 point)

$$\boxed{(0,0)}$$

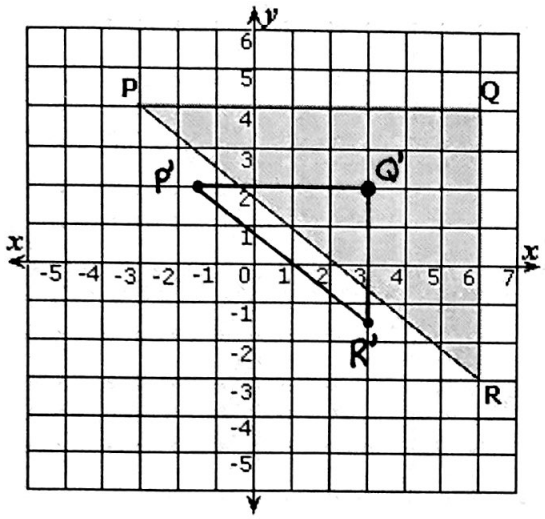
3. Determine the scale factor: (1 point)

$$\boxed{\frac{1}{2}}$$

$$SF = \frac{4}{8} = \frac{1}{2}$$



4. Graph the image of $\Delta P'Q'R'$ after dilation with scale factor of $\frac{1}{2}$, centered at (0,0). Write the coordinates of the image in the space provided. (3 points)



P'	(-1.5, 2)
Q'	(3, 2)
R'	(3, -1.5)

Original: P(-3, 4)
Q(6, 4)
R(6, -3)

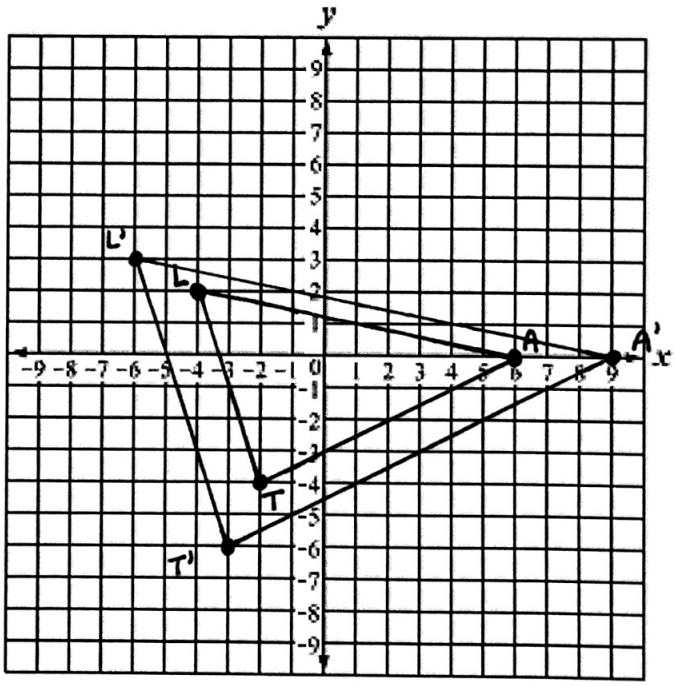
5. Complete a), b) and c) using the coordinate plane below (3 points):

a) Graph ΔLAT with vertices at:
$L\ (-4, 2)$, $A\ (6, 0)$, and $T\ (-2, -4)$.

b) Transform ΔLAT by a scale factor of $\frac{3}{2}$.
* Use (0,0) as center of dilation

L'	(-6, 3)
A'	(9, 0)
T'	(-3, -6)

c) Graph $\Delta L'A'T'$.



Target 6B: Determine that two figures are similar using AA, SSS, and SAS similarity by verifying that angle measure is preserved and corresponding sides are proportional and use to make conclusions.

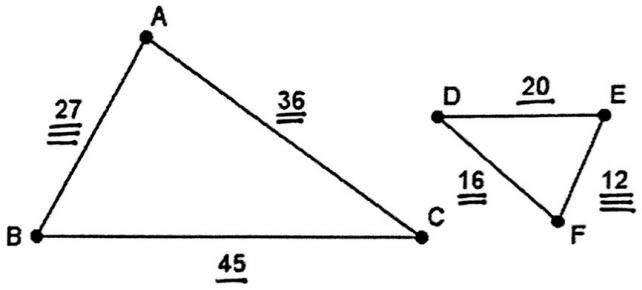
6. Determine if the triangles are similar. If they are not similar, select "Not Possible." (1 point)

$\frac{AB}{FE} = \frac{BC}{ED} = \frac{CA}{DF}$

$\frac{27}{12} = \frac{45}{20} = \frac{36}{16}$

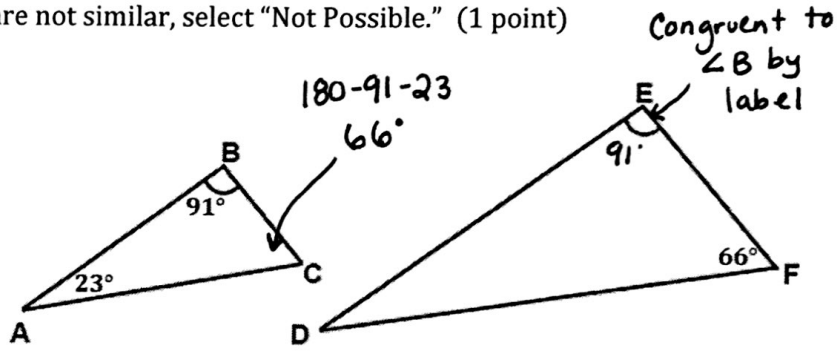
$\frac{9}{4} = \frac{9}{4} = \frac{9}{4}$ ✓

$\triangle ABC \sim \triangle FED$ by SSS~



7. Determine if the triangles are similar. If they are not similar, select "Not Possible." (1 point)

$\triangle ABC \sim \triangle DEF$ by AA~



8. Determine if the triangles are similar. If they are not similar, select "Not Possible." (1 point)

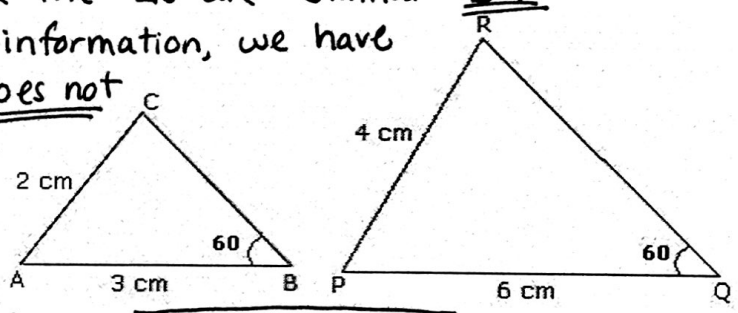
$\angle Q \cong \angle B$ given

$\frac{CA}{RP} = \frac{AB}{PQ}$

$\frac{2}{4} = \frac{3}{6}$

$\frac{1}{2} = \frac{1}{2}$

This looks like the △s are similar BUT based on the information, we have "SSA", which does not Prove Similarity. We need to know that $\angle A \cong \angle P$ and we don't know that for a fact so...



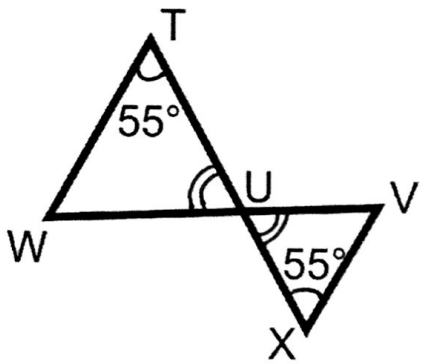
Not Possible

9. In the diagram below, are the two triangles similar? How do you know? Justify your reasoning. (3 points)

$\angle T \cong \angle X$ both 55°

$\angle TUW \cong \angle XUV$ vertical ∠'s are ≅

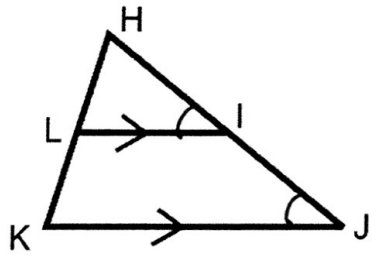
$\triangle TUW \sim \triangle XUV$ by AA~



10. Fill in the blanks of the two column proof. (3 points)

Given: $\overline{LI} \parallel \overline{KJ}$

Prove: $\Delta HLI \sim \Delta HKJ$



Statement	Reason
1. ~~$\overline{LN} \parallel \overline{MK}$~~ CORRECTION: $\overline{LI} \parallel \overline{KJ}$	1. Given
2. $\angle HLI \cong \angle HKJ$ (OR) $\angle H \cong \angle H$	2. Corresponding Angles / Same Angle (Reflexive Property)
3. $\angle HIL \cong \angle HJK$	3. Corresponding Angles
4. $\Delta HLI \sim \Delta HKJ$	4. AA~

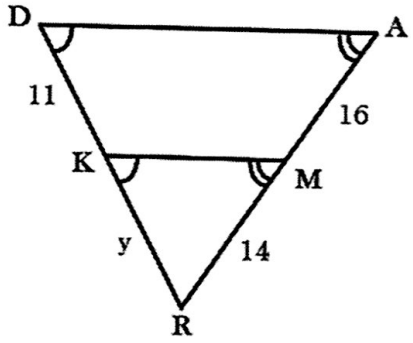
Target 6C: Apply theorems, postulates, or definitions to find missing values.

11. Find the value of y in the given diagram. (1 point)

$$\frac{y}{14} = \frac{11}{16}$$

$$\frac{16y}{16} = \frac{154}{16}$$

$$\boxed{y = \frac{77}{8}}$$

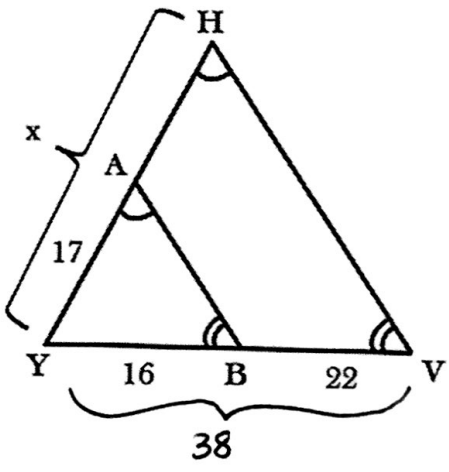


12. Find the value of x in the given diagram. (1 point)

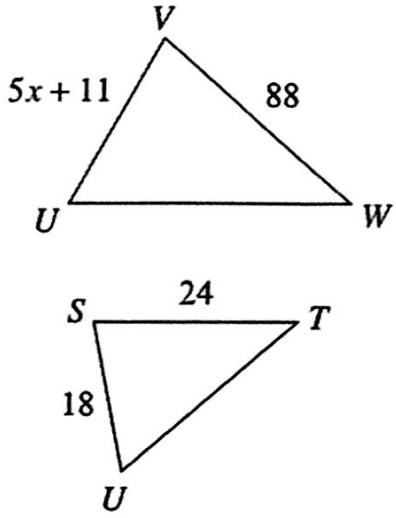
$$\frac{x}{17} = \frac{38}{16}$$

$$\frac{16x}{16} = \frac{646}{16}$$

$$\boxed{x = \frac{323}{8}}$$



13. Given $\Delta UVW \sim \Delta SUT$, solve for x. (1 point)



$\frac{5x+11}{18} = \frac{88}{24}$

$24(5x+11) = 18(88)$

$120x + 264 = 1584$

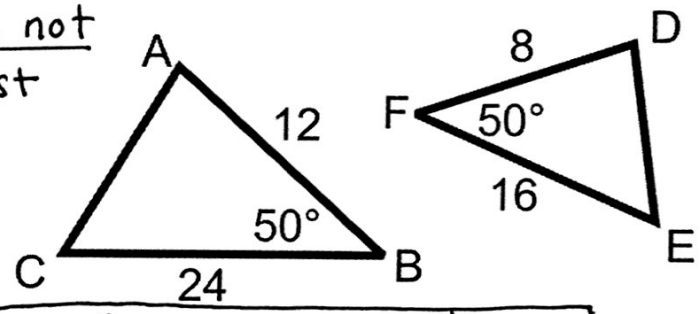
$-264 \quad -264$

$\frac{120x}{120} = \frac{1320}{120}$

$\boxed{x = 11}$

14. Cassie claims that ΔABC is not similar to ΔDFE due to the fact that the sides are not congruent. Is Cassie correct? How do you know? (3 points)

Sides of similar triangles do not need to be congruent they must be proportional.



$\frac{AB}{DF} = \frac{BC}{FE}$ $\boxed{\Delta ABC \sim \Delta DFE \text{ by SAS} \sim}$

$\frac{12}{8} = \frac{24}{16}$

$\frac{3}{2} = \frac{3}{2}$ ✓ ← sides are proportional

So, Cassie is wrong because the triangles are Similar.

15. Taylor observed that a truck was casting a 7 foot shadow. A nearby 25 foot-high billboard was casting a 30 foot shadow. (3 points)

a) Draw a diagram that models the situation.

b) Set-up a proportion that models this situation. Determine the height of the truck.

$\frac{x}{25} = \frac{7}{30}$

$\frac{30x}{30} = \frac{175}{30}$

$\boxed{x \approx 5.83 \text{ ft}}$